



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/068,384 | 02/07/2002 | Minoru Sudo | S004-4651 | 6137 |

7590 02/23/2005

ADAMS & WILKS
31ST FLOOR
50 BROADWAY
NEW YORK, NY 10004

| |
|----------|
| EXAMINER |
|----------|

NGUYEN, JIMMY H

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2673

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,384

Applicant(s)

SUDO, MINORU

Examiner

Jimmy H. Nguyen

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-10 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-10 and 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/16/2004 has been entered. Claims 8-10 and 25-28 are currently pending in the application. An action on the RCE follows:

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in 10/068,384 on 02/07/2002. It is noted, however, that applicant has not filed a certified copy of the JP 2002-020623 application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Hirane et al. (USPN: 4,967,192), hereinafter Hirane.

As per claim 10, the claimed invention is read on Hirane as follows: Hirane discloses a LED drive circuit (11) (fig. 2, col. 3, line 54) comprising a plurality of LEDs (see fig. 1); a constant current generating circuit (a circuit including elements R1-Rn, Tro, TRc, and their connections (see fig. 1) for driving the plurality of LEDs (see fig. 2; col. 4, lines 33-68); and a plurality of switches (switching transistors TRS, see fig. 1), each connected between the current generating circuit and respective ones of the LEDs for causing the LEDs to blink in a time-division manner (see fig. 2; col. 4, lines 33-68). The elements in claim 10 are read in the reference.

5. Claim 10 is rejected under 35 U.S.C. 102(e) as being anticipated by Nagumo (USPN: 6,400,349 B1).

As per claim 10, the claimed invention is read on Nagumo as follows: Nagumo discloses a LED drive circuit (as shown in fig. 12) comprising a plurality of LEDs (LD1s, LD2, LD3s and LD4s, see figs. 12 and 14); a constant current generating circuit (a control voltage generating circuit 209, see fig. 12) for driving a plurality of LEDs (see col. 8, lines 17-29, and col. 13, line 57 through col. 14, line 15); and a plurality of switches (driving elements Tr1; see fig. 12) each connected between the current generating circuit and respective ones of the LEDs for causing the LEDs to blink in a time-division manner (see fig. 14 and col. 14, lines 38-62). The elements in claim 10 are read in the reference.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 8, 9 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Worley, Sr. et al. (USPN: 6,486,726 B1), hereinafter Worley.

As per claims 8, 9, 26 and 28, the claimed invention reads on Worley as follows: Worley discloses a LED driver circuit (as shown in fig. 7A) comprising a plurality of LEDs (LED1 705, LED2 710, fig. 7A); a constant current circuit (a circuit including elements 305, 310, 315 and 320, see fig. 7A); a plurality of switches (switches 730, 735, see fig. 7A, col. 10, line 17) connected to respective ones of the LEDs (LED1 705, LED2 710, fig. 7A) for periodically turning on and off the LEDs (705, 710) at certain time intervals (see fig. 7B, col. 10, lines 35-55); and a switch control circuit (a ring counter 715, fig. 7A, col. 10, line 12) for controlling the switches (705, 710) in response to an external signal (a control logic signal from an external source, col. 6, lines 14-15) to cause the LEDs (705, 710) to blink in a time-division manner. See figs. 2, 3, 7A and 7B, col. 6, lines 14-24, and col. 10, lines 35-55. Worley does not disclose expressly the embodiment of fig. 7A including a boosting circuit and a boosting control circuit, as presently claimed. However, Worley further teaches a LED circuit according to an embodiment illustrated in fig. 10, comprising a boosting control circuit (a circuit including a comparator 1025, see fig. 10) for providing a control signal (1055) (see fig. 10) to control a boosting circuit (a circuit including elements 1005, 1010, 1015, 1035, 1040 and 1050, see fig. 10) for boosting a power supply voltage (V_{dd}) when the current falls below a predetermined value (see fig. 10 and the description, col. 12, line 15 through col. 13, line 7). Worley further teaches the benefit of using the boosting circuit and the boosting control circuit is to drive the LED from a voltage power supply having a voltage that is lower than the turn "on" voltage of the

Art Unit: 2673

LED (see col. 2, lines 27-40), thereby allowing the LED driver circuit to operate over a wide range of application using different power supply voltages (see col. 12, lines 2-5). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide a boosting circuit and a boosting control circuit in the Worley LED drive circuit according to the embodiment illustrated in fig. 7, in view of the teaching in the Worley reference, because this would allow the LED driver circuit to operate over a wide range of application using different power supply voltages, as taught by Worley. Furthermore, since the boosting circuit operates based upon a comparison (see col. 3, lines 58-62), the power consumption is obviously reduced.

Regarding to claims 25 and 27, Worley also teaches the LEDs (15) blinking or turning on and off at a frequency of 40 Hz or above and at a rate higher than a visual perception rate (see col. 7, lines 6-21; and col. 10, lines 59-63).

Response to Arguments

8. Applicant has amended claims 8 and 9 to overcome the rejection under 35 USC 112, first paragraph, in the Office Action dated 7/12/2004. This rejection is hereby withdrawn.

9. Applicant has cancelled claim 4, the objection to claim 4, in the Office Action dated 7/12/2004, is hereby withdrawn.

10. Applicant's arguments filed 10/15/2004 with respect to the benefit of the priority of Japanese Patent Applications Nos. 2001-032261 and 2002-020623 and the effectively filing date of the Worley and Hoshino (US 6,628,252 B2) have been fully considered but they are persuasive only in-part, because as follows:

Art Unit: 2673

i. With respect to the pending claim 10, since all claimed limitations of this claim are fully supported in the earlier-filed JPA 2001-032261, the invention of the pending claim 10 is entitled the benefit of priority of both Japanese Patent Applications (JPAs), and so both of the Worley and Hoshino references are not qualified as references against claim 10. However, upon further consideration, a new ground(s) of rejection is made in view of Hirane et al and Nagumo as discussed in the rejections above.

ii. With respect to the pending claims 8, 9 and 25-28, the present application is not entitled the benefit of the earlier-filed JPA 2001-032261, since the claimed limitations, “a boosting circuit” and a boosting control circuit” of independent claim 8, and “means for boosting the voltage” of independent claim 9 of claim 10 are not fully supported in the earlier-filed JPA 2001-032261 (see the certified copy and the English translation of the JPA 2001-032261, which do not disclose the embodiments 5 and 6 as illustrated by figures 11-14). Accordingly, with respect to the pending claims 8, 9 and 25-28, the present application is only entitled the benefit of priority of the later-filed Japanese Patent Application 2002-020623 filed January 29, 2002. In other words, both of the Worley and Hoshino references are qualified as references against these pending claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is (703) 306-5422. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..

Art Unit: 2673

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN
February 22, 2005



Jimmy H. Nguyen
Primary Examiner
Art Unit: 2673